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ABSTRACT

Vocational values of age-by-sex groups were examined in terms of Minnesota Importance Questionnaire (MIQ) need Structures. Clients from the Minnesota Division of Vocational Rehabilitation (N=9,377) completed the MIQ in connection with vocational counseling. Subjects were classified into four age groups for each sex (16 to 18 years, 19 to 25 years, 26 to 45 years, and 46 to 71 years). Orthogonal principal axes factor analysis followed by varimax rotation was performed on MIQ scale score intercorrelations. Six factors appeared to be the most appropriate in finding a solution. Several scale clusters were consistent across all age-by-sex groups with the placement of the scales Moral Values, Authority and Variety showing marked sex differences. This factor structure compares well with a structure of values proposed by Lofquist and Dawis (1969). (Author)

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# Values as Second Order Needs

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## Values as Second Order Needs

The classification of occupations is a persistent problem in vocational psychology. A major shortcoming of available occupational classifications is that no one is entirely satisfactory for vocational counseling, principally because the relationship of job satisfaction to the classification systems remains largely unexplored.

Addressing this shortcoming of classification systems, Zytowski (1970) has proposed that a taxonomy of work values may serve as a framework for the description of work and for the classification of occupations. If a person has determined the relative importance of work-rewards for him or herself and occupations are understood in terms of their potential to provide these rewards, it should be possible to identify a number of occupations compatible with the individual's work values.

The Minnesota Importance Questionnaire, developed by Dawis, Lofquist, and Weiss (MIQ; Gay, Weiss, Hendel, Dawis, & Lofquist, 1971) was designed to assess work-relevant needs and their relative importance to the individual. When utilized together with Occupational Reinforcer Patterns (Rosen, Weiss, Hendel, Dawis, & Lofquist, 1972), the MIQ facilitates comparison of the individual's needs with the need satisfaction potential of reinforcers in the work environment. Such comparisons have been shown to predict job satisfaction (Betz, 1969; Lofquist & Dawis, 1969; Rounds & Dawis, 1975).

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Assuming needs represent specific components of an individual's value system, MIQ scale scores may be organized and interpreted in terms of underlying value patterns (Lofquist & Dawis, 1975). Lofquist (1973, Note 1) defines work values as "dimensions of the meaning of work for an individual described in terms of the general reinforcer conditions in a work environment across sets of relatively homogeneous specific needs" (p. 1). Six work-value dimensions have been derived from MIQ need scales (Lofquist, 1973; Lofquist & Dawis, 1975) based on factor analyses of the MIQ (Gay et al., 1975). These work-value dimensions and the MIQ scales whose interrelationships define the values, are found in Table 1, and may be described as follows:

1. Safety, which incorporates the importance to the individual of stability of work rules and practices, and a noncapricious management;

2. Comfort, which reflects the importance of a steady job that is interesting enough, comfortable to have, and can be relied on;

3. Aggrandizement, which represents the importance of the opportunity for gaining self-advancement, power, and authority over others;

4. Altruism, which is the importance of the opportunity for humanitarianism, social service, and benevolence;

5. Achievement, which is the importance of the opportunity for fulfillment, performance, and accomplishment; and

6. Autonomy, which represents the importance of self-governance on the job and freedom to decide and act.

Support for this proposed value structure is provided by factor analyses of the MIQ (Gay et al., 1971) which showed that scale scores grouped to define six factors for samples of college students, employed workers, vocational rehabilitation clients, and for the three samples combined. Although these factor analyses were basically supportive of

the Lofquist-Dawis proposed value schema, factor composition differed slightly across samples. A factor analysis of the MIQ scores of high school students produced similar scale clusters but only five factors (Gray, 1974).

Age and sex are known to be related to differences in MIQ scores (Gay et al., 1971). The previous factor analyses were carried out on samples which were heterogeneous with regard to age and sex. Factor analyses on samples homogeneous in age and sex should clarify the factor structure, that is, the value dimensions, underlying the needs measured by the MIQ.

The purpose of the present investigation was twofold. First, it was a replication and extension of previous factor analyses focusing on the study of factor structures for homogeneous age-by-sex groups. Age and sex were treated as separate variables in order to observe any interaction effects. Secondly, this investigation was intended to clarify the value dimensions underlying the apparently less stable clusters of scales. A comparison of factor structures across age-by-sex groups might also suggest developmental trends in work-value dimensions, as well as indicate sex differences in value structures.

## Method

Subjects. The subjects (N = 9,377) in this study were clients from the Minnesota Division of Vocational Rehabilitation during the years 1969 to 1971. The total sample of subjects was divided into eight subgroups: the following age groups for each sex -- 16 to 18 years, 19 to 25 years, 26 to 45 years, and 46 to 71 years. No group was smaller than N = 400.

Instrument. Subjects completed the Minnesota Importance Questionnaire in connection with vocational assessment. The MIQ is a

210-item paired comparison instrument designed to measure 20 vocational needs. The MIQ consists of a comparative judgment section, in which each vocational need statement is paired with every other statement, yielding 190 pairs, and an absolute judgment section in which each of the 20 vocational need statements is rated for importance. The scale scores of the MIQ are obtained from the comparative judgment section and are adjusted to a zero point based on the absolute judgment section (Gulliksen, 1964). In terms of Clemans' criteria of ipsativity (1968), the MIQ is partially ipsative, but very minimally so because of the adjustment to an individual zero point.

Analysis. For each subgroup, the MIQ adjusted scale score intercorrelation matrix was submitted to an orthogonal principal factor solution using squared multiple correlations as communality estimates, with rotation to a varimax criterion. Four, five, six, and seven factors were extracted and rotated. To constitute for each sex an all-ages group, random samples of approximately N = 400 were drawn from each sex's subgroups and combined. The same factor analysis procedures were applied to the MIQ scale score intercorrelations for these two sex groups (male N = 1,609 and female N = 1,674).

To determine the number of factors for the final solution the following multiple criteria (Rummel, 1970; Weiss, 1972) were used: One residual error factor, the Kaiser criterion of eigenvalues greater than or approximately equal to one, Cattell's scree test, amount of explained variance, and interpretability of the factor structure. These criteria were applied to the four, five, six, and seven factor solutions across the eight subgroups.

## Results

Six factors appeared to be the most appropriate and parsimonious

solution consistent across age and sex. Tables 2 and 3 show the factor loading matrix for the six factor solution for the all-ages subgroups. These six factors accounted for approximately 50 percent of the total variance for the youngest group for each sex, increasing with age to 60 percent for the oldest groups.

A first factor appearing in all groups was defined by Social Status, Recognition, Compensation, and Advancement. The Authority scale also loaded on this factor for all male subgroups and for the total female group but not for the age-by-sex, female subgroups.

For all groups the triad of Company Policies and Practices, Supervision-Human Relations and Supervision-Technical loaded highly on one factor. Additionally, for all four female subgroups, there was a high loading on Moral Values; whereas for male subgroups the Working Conditions and Security scales loaded significantly.

Responsibility, Creativity, and Authority had high loadings on a factor for all groups. In addition, Variety loaded on this factor for all female subgroups but only for males over 25.

For all groups Activity and Independence had high loadings on a fourth factor. Additionally, for males, Variety had significant loadings for all subgroups; Security had significant loadings for all but the youngest subgroup; and the two older subgroups also showed significant loadings on Working Conditions. The scales with significant loadings for the total male group included Activity, Independence, Security and Variety. For females, Activity and Independence alone defined the factor for the youngest subgroup; Variety was added for the next youngest, while Advancement, Security, and Working Conditions had significant loadings for the older subgroups. Activity, Independence, Security, and Working Conditions defined the factor for the total female group.

Social Service, Moral Values, and Co-Workers defined a fifth factor for males. Social Service and Co-Workers defined the factor for all female subgroups, with the addition of Variety for all but the 19 to 25 year subgroup and the all-ages female group.

Ability Utilization and Achievement defined a sixth factor for all eight age-by-sex groups and random samples of the total sex groups. For the two-subgroups of females under the age of 25, Social Service also loaded on this factor.

## Discussion

Compared with the Lofquist-Dawis value model, the current factor structure suggests that Authority should be included with Creativity and Responsibility in defining the value of Autonomy rather than as a component of Aggrandizement. Compensation fits better in defining the value of Aggrandizement than the Comfort value. This last rearrangement makes intuitive sense when considering the item content. A few scales varied in factor placement across the eight subgroups, with Variety and Authority being the least stable. Overall it appears that the Lofquist-Dawis model provides a useful interpretation of the values underlying the vocational needs assessed by the MIQ.

Similarities in the factor structures of males and females predominate, but there are some differences that undoubtedly affect interpretation of the corresponding values. Moral Values clusters with Co-Workers and Social Service for males in what Lofquist and Dawis call an Altruism value. For females, however, Moral Values loads with the Lofquist-Dawis Safety value, defined by Supervision-Human Relations, Supervision-Technical, and Company Policies and Practices. From this context it would appear that doing work without feeling that it is morally wrong means something different for females from what it means for males.

In addition, the Authority scale has a significant loading on the Aggrandizement value for males but not females, possibly indicating that females do not feel that being able to tell others what to do is an available route for the expression of Aggrandizement.

Age differences consisted mainly of variation in the factor placement of individual scales but no consistent trends in factor composition were identifiable for either sex group.

## Conclusion

A six factor solution appears to be appropriate to a factor analysis of the MIQ. This is consistent with the previous Gay et al. (1971) factor analyses and with the theoretical structure of values proposed by Lofquist and Dawis (1975).

Several age differences in factor composition are notable but no consistent trends are identifiable. Sex differences in factor composition are evident in the placement of the Moral Values and Authority scales. Overall, the Lofquist-Dawis value schema appears to be a viable start towards a taxonomy of work values, especially for males. The extraction of six factors generally matches the Lofquist-Dawis proposed value clusters.

The MIQ need structure seems uniform across age and sex groups in a population of vocational rehabilitation clients, indicating that the instrument does measure similar concepts across these (age-by-sex) groups. This finding increases the generalizability and applicability of the instrument, supporting its use in the organization and classification of vocational needs and values.

## Reference Note

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Tables to Accompany

# Values as Second Order Needs

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Table 1

Lofquist-Dawis Value Clusters

| Value Clusters | | MIQ Need Scales |
|---|---|---|
| I. | Safety | Supervision-Human Relations: My boss would back up the workers (with top management). |
| | | Supervision-Technical: My boss would train the workers well. |
| | | Company Policies and Practices: The company would administer its policies fairly. |
| II. | Autonomy | Responsibility: I could make decisions on my own. |
| | | Creativity: I could try out some of my own ideas. |
| III. | Comfort | Activity: I could be busy all the time. |
| | | Independence: I could work alone on the job. |
| | | Variety: I could do something different every day. |
| | | Security: The job would provide for steady employment. |
| | | Working Conditions: The job would have good working conditions. |
| | | Compensation: My pay would compare well with that of other workers. |
| IV. | Altruism | Social Service: I could do things for other people. |
| | | Moral Values: I could do the work without feeling that it is morally wrong. |
| | | Co-workers: My co-workers would be easy to make friends with. |
| V. | Achievement | Ability Utilization: I could do something that makes use of my abilities. |
| | | Achievement: The job could give me a feeling of accomplishment. |
| VI. | Aggrandizement | Social Status: I could be "somebody" in the community. |
| | | Recognition: I could get recognition for the work I do. |
| | | Authority: I could tell people what to do. |
| | | Advancement: The job would provide an opportunity for advancement. |

Table 2
Varimax Factor Loading Matrix for Total Male Group
N = 1609

| MIQ Scale | Factor I | II | III | IV | V | VI | $h^2$ |
|---|---|---|---|---|---|---|---|
| Ability Utilization | .16 | .21 | .31 | .14 | .22 | .60 | .59 |
| Achievement | .27 | .16 | .17 | .13 | .35 | .62 | .66 |
| Activity | .12 | .28 | .06 | .66 | .07 | .20 | .58 |
| Advancement | .51 | .41 | .22 | .08 | -.14 | .37 | .64 |
| Authority | .47 | .16 | .45 | .13 | .03 | .03 | .47 |
| Company Policies & Practices | .11 | .71 | .10 | .04 | .36 | .11 | .66 |
| Compensation | .53 | .41 | .04 | .20 | -.07 | .05 | .50 |
| Co-workers | .33 | .31 | .06 | .31 | .42 | .03 | .48 |
| Creativity | .07 | .04 | .78 | .11 | .23 | .23 | .73 |
| Independence | .14 | .12 | .24 | .60 | .01 | .03 | .45 |
| Moral Values | .00 | .18 | .09 | -.10 | .50 | .09 | .31 |
| Recognition | .60 | .17 | .21 | .15 | .06 | .35 | .59 |
| Responsibility | .21 | .10 | .78 | .21 | .15 | .17 | .77 |
| Security | .28 | .52 | -.13 | .43 | -.16 | .19 | .62 |
| Social Service | .01 | .08 | .24 | .21 | .59 | .18 | .49 |
| Social Status | .68 | .08 | .13 | .17 | .17 | .11 | .55 |
| Supervision-Human Relations | .19 | .71 | .19 | .07 | .26 | .12 | .66 |
| Supervision-Technical | .11 | .70 | .08 | .24 | .19 | .13 | .62 |
| Variety | .20 | .04 | .38 | .51 | .13 | .02 | .46 |
| Working Conditions | .34 | .54 | -.02 | .41 | .01 | .06 | .58 |
| Contribution of factor | 2.17 | 2.77 | 2.00 | 1.83 | 1.36 | 1.27 | 11.40 |
| Percent of communality | 19.0 | 24.3 | 17.5 | 16.1 | 11.9 | 11.1 | 99.9 |
| Percent of total variance | 10.9 | 13.9 | 10.0 | 9.2 | 6.8 | 6.4 | 57.2 |

Table 3
Varimax Factor Loading Matrix for Total Female Group
N = 1674

| MIQ Scale | Factor I | II | III | IV | V | VI | $h^2$ |
|---|---|---|---|---|---|---|---|
| Ability Utilization | .17 | .35 | .22 | .22 | .11 | .58 | .59 |
| Achievement | .32 | .25 | .24 | .09 | .24 | .56 | .61 |
| Activity | .15 | .14 | .08 | .67 | .28 | .17 | .61 |
| Advancement | .58 | .18 | .18 | .30 | -.07 | .27 | .56 |
| Authority | .42 | .51 | .13 | .11 | .10 | -.01 | .47 |
| Company Policies & Practices | .22 | .10 | .71 | .20 | .03 | .13 | .63 |
| Compensation | .62 | .06 | .25 | .26 | .05 | -.04 | .52 |
| Co-workers | .32 | .10 | .22 | .18 | .58 | -.02 | .53 |
| Creativity | .03 | .76 | .16 | -.05 | .12 | .23 | .68 |
| Independence | .16 | .34 | .06 | .44 | .11 | .07 | .35 |
| Moral Values | -.05 | .08 | .41 | -.16 | .14 | .07 | .23 |
| Recognition | .65 | .24 | .12 | .08 | .10 | .30 | .60 |
| Responsibility | .17 | .78 | .12 | .09 | .11 | .17 | .71 |
| Security | .44 | -.11 | .16 | .61 | .05 | .06 | .61 |
| Social Service | -.01 | .19 | .11 | .13 | .50 | .26 | .38 |
| Social Status | .57 | .18 | .04 | .15 | .27 | .11 | .46 |
| Supervision-Human Relations | .23 | .13 | .72 | .14 | .05 | .07 | .62 |
| Supervision-Technical | .21 | .06 | .61 | .34 | .07 | .12 | .56 |
| Variety | .15 | .42 | -.04 | .32 | .39 | .05 | .46 |
| Working Conditions | .43 | .01 | .33 | .49 | .14 | .05 | .56 |
| Contribution of factor | 2.51 | 2.16 | 2.04 | 1.87 | 1.08 | 1.06 | 10.72 |
| Percent of Communality | 23.4 | 20.1 | 19.0 | 17.4 | 10.1 | 9.9 | 99.9 |
| Percent of total variance | 12.6 | 10.8 | 10.2 | 9.4 | 5.4 | 5.3 | 53.7 |